

# INFORMAL BID CITY OF ST. LOUIS

OFFICE OF THE SUPPLY COMMISSIONER  
1200 MARKET ST RM 324  
ST LOUIS MO 63103-2842



REQUEST FOR QUOTE

41513Q1113

PAGE

1

ADDRESS CORRESPONDENCE TO

... We agree to furnish the following articles to the City of St. Louis,  
free of any extra charges, in the quantity named and at the prices respectively  
stated:

T  
O

S  
H  
I  
P  
T  
O

PUB. UTILITIES-WATER DIVISION  
CHAIN OF ROCKS WATER PLANT  
CONSTRUCTION & MAINT. SECTION  
10450 RIVERVIEW BLVD  
ST LOUIS MO  
63137

SEE TERMS AND CONDITIONS ON THE REVERSE SIDE OF THIS QUOTATION SHEET.

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
08/15/12				

REPLY DUE BY: 08/28/12 12:00 O'CLOCK NOON

NEEDED BY DATE	QUANTITY	UNIT	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
	<b>REQ LINE NUMBER : 0001</b>  <b>1 EACH CITY 415ENM5</b>  <b>ELECTRO-NUMERICS MIGHTY-5 5" LED PROCESS</b>  <b>INDICATOR MODEL# M5WHHHE-SC</b> <b>SEE ATTACHED FOR ITEM SPECIFICATIONS AND ORDER CODE.</b>  <b>REGULAR REQUISITION COST CENTER 4123</b> <b>ITEM TO BE DELIERED TO CHAIN OF ROCKS WATER TREATMENT</b> <b>PLANT, 10450 RIVERVIEW DR. ST. LOUIS, MO. 63137</b>  <b>QUESTIONS: CONTACT TOM CORELLE @ 314-592-8203</b> <b>DELIVERY TIMES: 7:00AM-3:00PM MON-FRI EXCEPT HOLIDAYS.</b>  <b>***** WEBSITE INFORMATION *****</b> <b>* * * * *</b> <b>* TO DOWNLOAD SUPPLY BIDS GO TO: * * * * *</b> <b>* HTTP://STLOUIS-MO.GOV/SUPPLY/BID-NOTICES.CFM * * * * *</b> <b>* * * * *</b> <b>* CLICK ON BID NOTICES * * * * *</b> <b>*****</b>  <b>OR ACCEPTABLE EQUAL</b> <b>CLEARLY STATE MFG., NO. &amp; BRAND</b>  <b>VENODR MUST SUBMIT DETAILED INFORMATION WITH BID ON</b> <b>PRODUCT OFFERED</b>					
					<b>TOTAL →</b>	

NAME OF FIRM		STATE DELIVERY:	COMPTROLLER	Date
ADDRESS			CALENDAR DAYS	
CITY	STATE	SIGNED BY:	SUPPLY COMMISSIONER	Date
PHONE Area Code (      )				

# INFORMAL BID CITY OF ST. LOUIS

OFFICE OF THE SUPPLY COMMISSIONER  
1200 MARKET ST RM 324  
ST LOUIS MO 63103-2842



REQUEST FOR QUOTE

41513Q1113

PAGE

2

ADDRESS CORRESPONDENCE TO

... We agree to furnish the following articles to the City of St. Louis,  
free of any extra charges, in the quantity named and at the prices respectively  
stated:

T  
O

S  
H  
I  
P  
T  
O

PUB. UTILITIES-WATER DIVISION  
CHAIN OF ROCKS WATER PLANT  
CONSTRUCTION & MAINT. SECTION  
10450 RIVERVIEW BLVD  
ST LOUIS MO  
63137

SEE TERMS AND CONDITIONS ON THE REVERSE SIDE OF THIS QUOTATION SHEET.

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
08/15/12				

REPLY DUE BY: 08/28/12 12:00 O'CLOCK NOON

NEEDED BY DATE	QUANTITY	UNIT	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>IF FREIGHT OR DELIVERY CHARGE TO BE BILLED, IT MUST BE INCLUDED IN THIS QUOTE OR IT WILL NOT BE PAID. ( ) FREIGHT IS INCLUDED IN THE QUOTED UNIT PRICE. ( ) WE WILL CHARGE FREIGHT/DELIVERY IN THE AMOUNT OF: \$ -----</p> <p>IT IS THE POLICY OF THE SUPPLY DIVISION THAT ALL BIDS/ CONTRACTS AWARDED IN THE AMOUNT OF \$500.00 AND ABOVE ADHERE TO THE MAYOR'S EXECUTIVE ORDER #28 WHICH RE- QUIRES MINIMUM UTILIZATION OF MINORITY OWNED BUSINESSES OF 25% AND WOMEN OWNED BUSINESSES OF 5%. ALL VENDORS MUST COMPLY WITH THIS POLICY AND ALL OTHER PROVISIONS OF EXECUTIVE ORDER NO. 28.</p> <p>IMPORTANT REQUIRED BID FORM(S) ATTACHED: VENDOR MUST COMPLETE, SIGN &amp; RETURN THE ENCLOSED BUY AMERICAN FORM WITH THEIR BID.</p> <p><b>**BID REQUEST AND ATTACHED FORM/S MUST BE COMPLETELY FILLED OUT AND SIGNED. IF NOT, BID MAY BE REJECTED.**</b> PLEASE QUOTE PRICES ON THIS FORM AND SIGN BID.</p> <p>* VENDORS SHOULD NOTE IF THEY ARE MINORITY OR WOMEN OWNED BUSINESS (CHECK) MBE ----- WBE-----</p>						
<b>TOTAL</b> →						

NAME OF FIRM		STATE DELIVERY:	COMPTROLLER	Date
ADDRESS				CALENDAR DAYS
CITY	STATE	SIGNED BY:	SUPPLY COMMISSIONER	Date
PHONE Area Code (       )				

# INFORMAL BID CITY OF ST. LOUIS

OFFICE OF THE SUPPLY COMMISSIONER  
1200 MARKET ST RM 324  
ST LOUIS MO 63103-2842



REQUEST FOR QUOTE

41513Q1113

PAGE

3

ADDRESS CORRESPONDENCE TO

... We agree to furnish the following articles to the City of St. Louis,  
free of any extra charges, in the quantity named and at the prices respectively  
stated:

T  
O

S  
H  
I  
P  
T  
O

PUB. UTILITIES-WATER DIVISION  
CHAIN OF ROCKS WATER PLANT  
CONSTRUCTION & MAINT. SECTION  
10450 RIVERVIEW BLVD  
ST LOUIS MO  
63137

SEE TERMS AND CONDITIONS ON THE REVERSE SIDE OF THIS QUOTATION SHEET.

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
08/15/12				

REPLY DUE BY: 08/28/12 12:00 O'CLOCK NOON

NEEDED BY DATE	QUANTITY	UNIT	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>ALL BIDS MUST INCLUDE COMPLETED "BUY AMERICAN" AND "MINORITY/WOMEN UTILIZATION STATEMENT" FORMS, AND ANY SUPPLEMENTAL INFORMATION REQUIRED. ANY QUESTIONS SHOULD BE DIRECTED TO THE BUYER.</p> <p>*** BID RESULTS MAY BE AVAILABLE 30 DAYS AFTER OPENING DATE. IF YOU DESIRE BID RESULTS, PLEASE INCLUDE A SELF ADDRESSED STAMPED ENVELOPE WITH YOUR BID. ***</p> <p>NOTICE RE: ORDINANCE #60643</p> <p>-----</p> <p>A CITY OF ST. LOUIS BUSINESS LICENSE IS REQUIRED IF YOU MEET ANY OF THE FOLLOWING (CHECK AS APPROPRIATE):</p> <p>----- BUSINESS IS LOCATED WITHIN THE CITY LIMITS</p> <p>----- DELIVERY WITHIN CITY LIMITS IS BY COMPANY TRUCK</p> <p>----- SALES CALLS MADE WITHIN THE CITY LIMITS</p> <p>PLEASE TYPE NAME OF CONTACT PERSON FOR THIS BID:</p> <p>NAME: -----</p> <p>FAX: -----</p> <p>E-MAIL: -----</p> <p>.....</p> <p>BIDS WILL BE AWARDED BASED ON OFFICIAL SPECIFICATIONS PROVIDED BY SUPPLY DIVISION ONLY &amp; ANY RELATED ADDENDA. ALL INQUIRIES MUST BE IN WRITING (LETTER/E-MAIL/FAX) TO THE FOLLOWING BUYER:</p> <p>BILL FULKERSON - FULKERSONB@STLOUISCITY.COM</p> <p>FAX# 314-622-4141 PHONE# 314-622-4250</p> <p>.....</p>						
						<b>TOTAL →</b>

NAME OF FIRM	STATE DELIVERY: CALENDAR DAYS	COMPTROLLER	Date
ADDRESS			
CITY	SIGNED BY:	SUPPLY COMMISSIONER	Date
PHONE			
Area Code ( )			

## MIGHTY-5 & MIGHTY-5S

### Daylight Readable LED Process & Scale Indicators

Price List & Ordering Guide (Effective May 1, 2011)

Ordering Example:	M5W	H	H	H	E	SC
	a	b	c	d	e	f

#### **a** MAIN ASSEMBLY & MOUNTING \$List

##### Mighty-5 Process Display

<b>M5W</b>	Outdoor weatherproof case/wall mount.....	1,285
<b>M5B</b>	Outdoor weatherproof case/bracket mount.....	1,335

##### Mighty-5S Scale Display

<b>M5SW</b>	Outdoor weatherproof case/wall mount.....	1,325
<b>M5SB</b>	Outdoor weatherproof case/bracket mount.....	1,375

Prices include configuration and scaling to your requirements.  
Add the -SC Option when scalings or configurations other than those shown (default settings) are required.

For extended version features, add "E" to the above ..... 40  
part numbers i.e. M5WE, M5SBE etc.

#### **b** ANALOG OUTPUT OPTION (Not required)

<b>H</b>	None .....	NC
<b>J</b>	0 to 10Vdc .....	90
<b>K</b>	0 to 20mA dc (4/20mA) .....	90
<b>L</b>	-10 to +10V .....	90

#### **c** SETPOINT OUTPUT OPTION (Not required)

<b>H</b>	None .....	NC
<b>R</b>	Two 8A Form C, contact relays .....	80
<b>Q</b>	Four 8A, Form C, contact relays .....	100
<b>C</b>	Two 130mA, Form A, solid state relays .....	55
<b>P</b>	Four 130mA, Form A, solid state relays .....	75

#### **d** DIGITAL INTERFACE OPTION (Not required)

<b>H</b>	None .....	NC
<b>2</b>	RS-232 .....	60
<b>2U</b>	RS-232-USB .....	60
<b>4</b>	RS-485 .....	80
<b>4U</b>	RS-485-USB .....	100
<b>5</b>	Modbus (Not available on Mighty-5S) .....	90

#### **e** SIGNAL CONDITIONERS (Select one)

##### DC VOLTAGE

<b>MV1</b>	1 200.00mV = 200.00 .....	65
	2 2.0000V = 2.0000 .....	65
	3 20.000V = 20.000 .....	65
	4 200.00V = 200.00 .....	65
	5 600.0V = 600.0 .....	65

##### DC CURRENT

<b>MCI</b>	1 2.0000mA = 2.0000 .....	65
	2 20.000mA = 20.000 .....	65
	3 200.00mA = 200.00 .....	65
	4 5.000A = 5.000 .....	65

##### PROCESS

<b>E</b>	4/20mA = 0-100.00 display .....	65
----------	---------------------------------	----

#### SIGNAL CONDITIONERS (Cont.)

\$List

##### STRAIN GAUGE, POTENTIOMETER.

<b>SG</b>	0/200mV = 0-100.00 display .....	65
-----------	----------------------------------	----

##### LOAD CELL, MICROVOLT METER

<b>LC</b>	0/20mV = 20,000 .....	125
-----------	-----------------------	-----

The following Signal Conditioners may only be selected for use with Process Main Assemblies (M5W or M5B).

##### AC TRUE RMS VOLTAGE

<b>MTV</b>	1 200.00mV = 200.00 .....	105
	2 2.0000V = 2.0000 .....	105
	3 20.000V = 20.000 .....	105
	4 200.00V = 200.00 .....	105
	5 600.0V = 600.0 .....	105

##### AC TRUE RMS CURRENT

<b>MTI</b>	1 2.0000mA = 2.0000 .....	105
	2 20.000mA = 20.000 .....	105
	3 200.00mA = 200.00 .....	105
	4 5.000A = 5.000 .....	105

Note: Range 4 may be used with an external Current Transformer and scaled to display in amps i.e. 5A = 15,000 A.

##### RTD TEMPERATURE

<b>M385C</b>	Pt 100 ohm -202 to 850°C .....	65
<b>M385F</b>	Pt 100 ohm -331 to 1562°F .....	65
<b>M392C</b>	Pt 100 ohm -202 to 850°C .....	65
<b>M392F</b>	Pt 100 ohm -331 to 1562°F .....	65
<b>M672C</b>	Ni 120 ohm -100 to 260°C .....	65
<b>M672F</b>	Ni 120 ohm -148 to 500°F .....	65
<b>M427C</b>	Cu 10 ohm -100 to 260°C .....	65
<b>M427F</b>	Cu 10 ohm -148 to 500°F .....	65

##### THERMOCOUPLE TEMPERATURE

<b>MJC</b>	-210 to 760°C .....	65
<b>MJF</b>	-347 to 1400°F .....	65
<b>MKC</b>	-244 to 1372°C .....	65
<b>MKF</b>	-408 to 1501°F .....	65
<b>MNC</b>	-245 to 1300°C .....	65
<b>MNF</b>	-410 to 2370°F .....	65
<b>MTC</b>	-257 to 400°C .....	65
<b>MTF</b>	-430 to 752°F .....	65
<b>MEC</b>	-270 to 1000°C .....	65
<b>MEF</b>	-450 to 1830°F .....	65
<b>MRC</b>	-45 to 1768°C .....	65
<b>MRF</b>	-49 to 3213°F .....	65
<b>MSC</b>	-46 to 1768°C .....	65
<b>MSF</b>	-51 to 3214°F .....	65

##### RESISTANCE (OHMS)

<b>MR1</b>	0-20 ohm .....	65
<b>MR2</b>	0-200 ohm .....	65
<b>MR3</b>	0-2 kohm .....	65
<b>MR4</b>	0-20 kohm .....	65
<b>MR5</b>	0-200 kohm .....	65

#### **f** SPECIAL CONFIGURATION (Not required)

**SC** Special Configuration: ..... N/C

Add this option only when scalings or configurations other than those shown (default settings) are required.

# *The MICRO SERIES PROCESS DISPLAYS*

## **LARGE DIGIT MODELS**

**Mighty-5**



## **DPM MODELS**

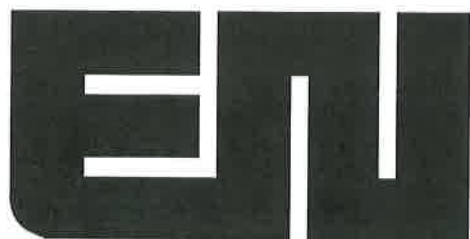
**Micro-P & Mighty-1**



**Mighty-1**



**Micro-P**



**ELECTRO-NUMERICS, INC.**

# Introduction

*The Electro-Numerics family of Digital Panel Meters and Large Digit Displays are accurate, solid state instruments designed for years of trouble free operation. Since 1974 we have been manufacturing quality products designed to meet the needs of our customers. Our displays are recognized in the industry as reliable, well designed instruments. From our compact sized 1/8<sup>th</sup> DIN Digital Panel*

*Meters with 0.56" Led digits to our Large Digit Displays with digit sizes from 1" to 9" viewable to 360 feet, we cover most applications in process measurement and display. This catalog describes our Micro Series of microprocessor-based display/controllers. Contact the factory or your local distributor for a catalog on our other display products.*

## Electro-Numerics' Products

### Digital Panel Meters



Micro-P Digital Panel Meter (DPM) with 0.56" Tall Led Digits

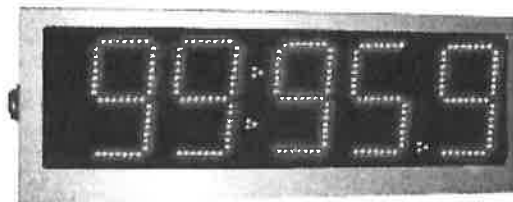
*Digital Displays with 0.56" Led digits provided in a 1/8 DIN (96 x 45mm) panel mount case. These units are compatible with most sensors and can be scaled to read in engineering units.*

### Large Digit Displays



Remote Displays, Counters, Timers and Process Displays

*Our family of Large Digit Displays includes many models with digit sizes ranging from 1" Led's to 9" tall electromagnetic characters. The Micro Series large digit displays covered in this catalog, includes the Mighty-1 with 1.0" digits readable at 40 feet the and the Mighty-5 with superbright outdoor-readable digits readable at 200 feet.*



Mighty-5 Process Indicator with 5" Tall Outdoor Led Digits

Please visit our Web Site at: <http://www.Electronumerics.com>

Call: **1-800-854-8530** or Fax: 951-695-7246 for Applications Assistance



# The Micro Series

## MICRO-P MIGHTY-1 MIGHTY-5

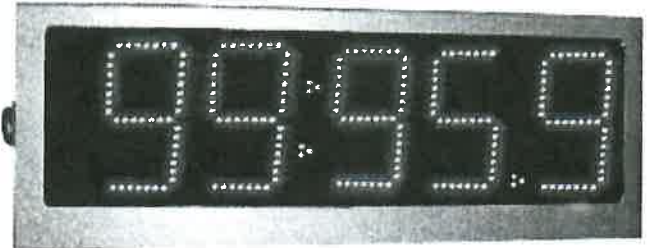
5 Digit (99,999) Process Indicators  
Choice of .56" or 1.0" Indoor or Superbright, 5.0" Outdoor LED Digits



**Micro-P** with 0.56"  
Led Digits



**Micro-1** with 1.0"  
Led Digits



**Mighty-5** with  
5" Outdoor Led Digits

### FEATURES

- **Bright Displays with 5 Digits (99,999) :**
  - Micro-P:* 0.56" red or green Led's
  - Mighty-1:* 1" red Led's. 40' visibility
  - Mighty-5:* 5" red outdoor Led's. 200' visibility
- **Signal Inputs:**  
DC voltage & current, true rms AC voltage & current, strain gauge, "process" (4/20mA, 0/10V etc.), RTD's, thermocouples and load cells.
- **Three Calibration Methods:**  
Allows easy setup to your transducer or sensor
- **60 Readings Per Second For:**
  - Fast control response
  - True peak reading
  - Analog outputs that track the input
- **Scalable to 5 Digits:**  
Engineering units to +/-99,999. Setup by front panel push-buttons or computer
- **Worldwide Power:**  
85 to 264Vac & 90 to 370 Vdc
- **Isolated 5, 10 or 24 Vdc Output:**  
Provides transmitter excitation
- **Peak Hold and Push-Button Tare:**

### PLUG-IN OPTIONS

- **Dual Setpoint Controller:**  
10 Amp, 240 Vac Form C relays or  
Isolated transistor outputs
- **Isolated Linearized Analog Outputs:**  
0 to 10 Vdc or 0 to 20 (4/20) mAdc
- **Isolated Digital Communications:**  
RS-232 for interface and meter setup  
RS-485 to interface with multiple meters  
Parallel BCD output
- **Isolated Low Voltage Power Supply:**  
9 to 37 Vdc and 8 to 28 Vac (not available on  
Mighty-5)

The **Micro-P**, **Mighty-1** and **Mighty-5** digital displays are state-of-the-art instruments for a wide range of monitoring and control applications. By simple front panel push-button setup, these displays can indicate DC Voltage or Current, True RMS Voltage or Current, Strain Gauges, Process Signals, RTD & Thermocouple temperature as well as Load Cells. All this at the price of meters with much less capability! Input signals may be directly displayed as voltage, current or temperature or scaled to a full five digits from 0 to 99,999 to read directly in engineering units such as ft-lbs, rpm, psi, etc. Three calibration methods are provided allowing these units to be connected directly to a transducer and scaled automatically or setup by known values entered through the front panel push-buttons. No calibration equipment is required when changing ranges; all standard ranges are digitally pre-calibrated at the factory.

Temperature scales (Celsius or Fahrenheit) are selectable from the front panel and one of seven thermocouples or two RTD's curves may be selected. These displays take up to 60 readings per second for fast control response, true peak reading capability, and an analog output that accurately tracks the signal input. An adaptive digital filter that can automatically select the best time constant for minimum noise yet respond rapidly to signal input changes is standard. The peak & valley value of the input signal can be displayed by a push of a button on the front panel and push-button tare allows the meter display to be set to zero for any input signal level.

The Micro-Series provides isolated 5, 10, or 24 Vdc output to power strain gauges and transmitters, eliminating the need for an external supply.

These displays have two alarm indicators with the setpoints programmed by front panel push-buttons. Option cards with dual open collector transistors or 10 amp form-C relays may be added to provide control outputs. The outputs can be set to operate above or below the setpoints in a latched or non-latching mode and with band deviation.

Analog Outputs of 0 to 10 V or 0 to 20 mA (4/20 mA) are available to drive chart recorders, remote displays or for transmission to a central control room. The outputs are scaled through the front panel push buttons.

Adding RS-232 or RS-485 enables the displays to communicate with PLC's or computers. Baud rates can be set from 300 to 19,200. Configuration software provided with these options makes meter setup even easier. Three state, parallel BCD outputs are also available.

The Micro Series can be provided in an extended operating mode. With an extended version signal conditioner card installed, these displays may be programmed to *linearize nonlinear signal inputs* and/or operate in a *rate-of-change* mode. Rate-of-change will display the time rate-of-change of the signal input.

Windows based data logging and monitoring software is available for connection of 1 to 32 meters with a serial communications card installed. This software allows monitoring the process values, setpoints and peak values and provides several methods of graphical display.

## ORDERING GUIDE

One entry required per block. For example, model M4R0HH2SG is a MIGHTY-4, large digit strain-gauge meter with red 4" Led display, high level power supply and RS232 communication. Note: Default ranges are shown below. All ranges, except temperature, can be scaled to read in engineering units. Add -SC option if required.

### ☐ Display Color & Digit Size

MR ..... Micro-P, Red 0.56" Led  
MG ..... Micro-P, Green 0.56" Led  
M1R ..... Mighty-1, Red 1" Led

#### **Mighty-5 (Red, 5" outdoor Leds):**

M5W ..... Wall Mount, NEMA-4X case  
M5B ..... Bracket Mount, NEMA-4X case

For extended features, add "E" to the part number i.e. MRE.

### ☐ Display Power (except Mighty-5)

0 ..... 85 to 264 Vac & 90 to 370 Vdc  
1 ..... 8 to 28 Vac & 9 to 37 Vdc  
Mighty-5 requires no entry, "0" is standard.

### ☐ Analog Output (optional)

H ..... None  
J ..... 0 to 10 Vdc  
K ..... 0 to 20 or 4/20 mA

### ☐ Setpoint Output (optional)

H ..... None  
R ..... Dual 10 A relay output  
C ..... Open collector output

### ☐ Digital Interface (optional)

H ..... None  
2 ..... RS-232  
4 ..... RS-485  
B ..... Parallel BCD

### ☐ Signal Conditioners (select one)

#### dc Volts

MV1 ..... 200.00 mV = 200.00  
MV2 ..... 2.0000 V = 2.0000  
MV3 ..... 20.000 V = 20.000  
MV4 ..... 200.00 V = 200.00  
MV5 ..... 660.0 V = 660.0

#### dc Amperes

MCI1 ..... 2.0000 mA = 2.0000  
MCI2 ..... 20.000 mA = 20.000  
MCI3 ..... 200.00 mA = 200.00  
MCI4 ..... 5.000 A = 5.000

#### True RMS Volts

MTV1 ..... 200.00 mV = 200.00  
MTV2 ..... 2.0000 V = 2.0000  
MTV3 ..... 20.000 V = 20.000  
MTV4 ..... 200.00 V = 200.00  
MTV5 ..... 660.0 V = 660.0

#### 100 Ohm Platinum RTD's

M385C ..... -202 to 850 °C  
M385F ..... -331 to 1562 °F  
M392C ..... -202 to 850 °C  
M392F ..... -331 to 1562 °F

#### Thermocouples

MJC ..... -210 to 760 °C  
MJF ..... -347 to 1400 °F  
MKC ..... -244 to 1372 °C  
MKF ..... -408 to 2501 °F  
MNC ..... -246 to 1300 °C  
MNF ..... -411 to 2372 °F  
MTC ..... -257 to 400 °C

#### Thermocouples (cont.)

MTF ..... -430 to 752 °F  
MEC ..... -240 to 1000 °C  
MEF ..... -400 to 1830 °F  
MSC ..... -46 to 1768 °C  
MSF ..... -51 to 3214 °F  
MRC ..... -45 to 1768 °C  
MRF ..... -49 to 3213 °F

#### Process Signals

E ..... 0/20mA, 4/20mA, 1/5V etc.  
Scalable with 5, 10 or 24V excitation

Default: 4/20mA=20,000, 10V excitation

#### Strain Gauges and Potentiometers

SG ..... 200mV, 2V & 20V  
Scalable with 5, 10 or 24V excitation

Default: 200mV=20,000, 10V excitation

#### Load Cells & 6 Wire Ratio

LC ..... 20, 50, 100, 250 & 500mV  
Scalable, with 10V excitation

Default: 20mV = 20,000, 10V excit.

### ☐ Special Configuration

SC Specify when configurations or scalings other than those defaults shown above are required.



## ELECTRICAL SPECIFICATIONS

## Display

Type .....	5 Digit, 7-segment
Digit size .....	Micro-P: 0.56", Mighty-1: 1", Mighty-5: 5" (discrete Led's in a 7-segment format)
Type .....	All except Mighty-5 are bright indoor Led's Mighty-5 digits are super-bright, daylight readable
Color .....	Red or Green (Micro-P only)
Range .....	-99,999 to +99,999

CMR from DC to 60 Hz ..... 130 dB  
NMR to 50/60Hz Line ..... 90 dB with min. filtering

## Environmental

Operating Temperature ..... 0°C to 55°C  
Storage Temperature ..... -40°C to 85°C  
Relative Humidity ..... 95% at 40°C, non-condensing

## A to D Conversion

Rate ..... 60/s at 60 Hz operation, 50/s at 50 Hz operation  
Output Update Rate ..... 56/s at 60 Hz, 47/s at 50 Hz  
Display Update Rate ..... 3.5/s at 60 Hz, 3/s at 50 Hz

**Enclosure**

Micro-P ..... 1/8 DIN plastic w/ sealed front, 92 x 45mm cutout  
Mighty-1 ..... Aluminum w/ sealed front, 183 x 90.5mm cutout  
Mighty-5 ..... Aluminum, NEMA-4X, surface or bracket mount

### Accuracy at 25°C

DC Volts, Amps, Strain (ratio) .....	0.01% FS +/-1 count
Thermocouple .....	0.2°C max.
RTD .....	0.04°C max.
True RMS (1 to 100%FS).....	0.05%FS, 10 Hz to 10 kHz
Load Cell .....	0.01%FS +/-1 count
Span Tempco .....	0.003% of reading/°C
Zero Tempco .....	0.1 counts./°C
Reference Junction .....	0.03 degree/degree

### Operating Power

Voltage (standard) ..... 85 to 264 Vac, 90 to 370 Vdc  
Voltage (optional except Mighty-5) ..... 8 to 28 Vac, 9 to 37 Vdc  
Frequency ..... DC and 47 to 440 Hz

## Excitation Power Supplies

Outputs ..... 5 Vdc, +/-5%, 100mA max.; 10 Vdc, +/-5%,  
120 mA max.; 24 Vdc, +/-5%, 50 mA max.  
Isolation (power ground) ..... Safety-rated to 250 Vac,  
4.2 kVp per High Voltage Test

## Noise Rejection

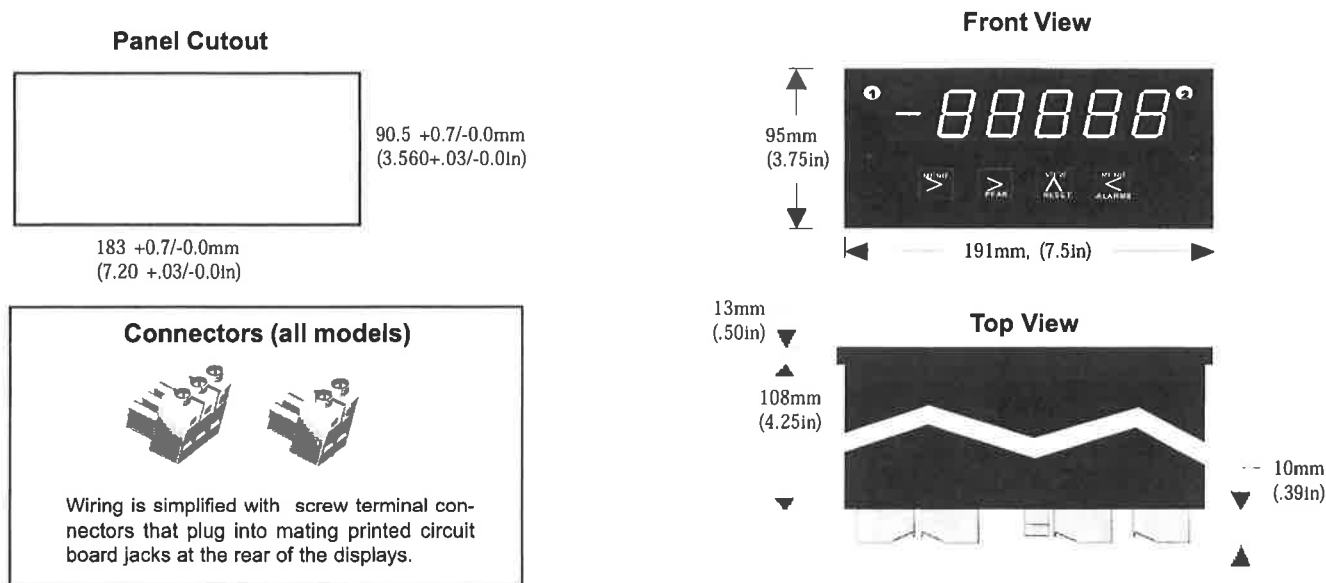
CMV from DC to 60 Hz ..... Safety-rated to 250 Vac,  
4.2 kVp per High Voltage Test

## MECHANICAL SPECIFICATIONS

### MICRO-P (1/8 DIN DPM)

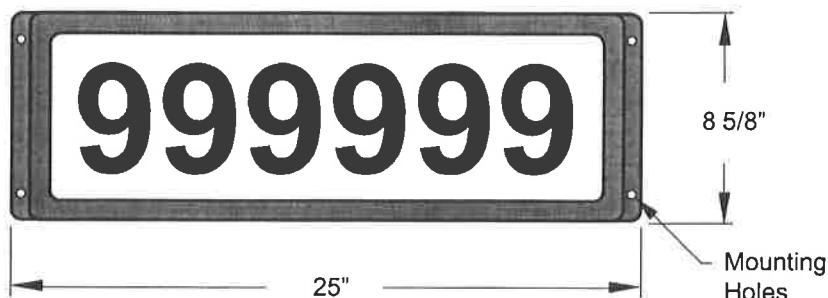


## MIGHTY-1

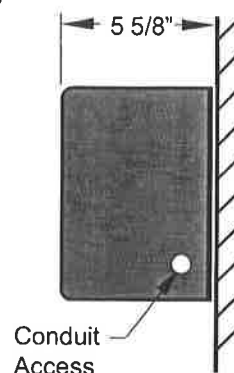


## MECHANICAL SPECIFICATIONS (Cont.)

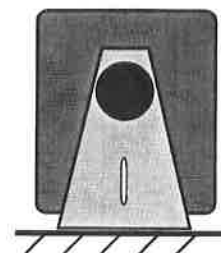
MIGHTY-5



**Option 1:** Wall Mount Back Panel  
Model M5W



**Option 2:** Universal Mounting Brackets  
Model M5B



## WARRANTY & SERVICE

### LIMITED PRODUCT WARRANTY:

Electro-Numerics Incorporated warrants these products to be free of defects in material and workmanship for two years from date of shipment to original customer. This warranty on materials and workmanship may be considered as unconditional provided that, in the opinion of Electro-Numerics, the equipment has not been mechanically, environmentally or electrically abused and has been installed, maintained and operated within the limits of rated or normal usage.

Defective products must be sent, transportation charges prepaid with notice of the defect, to our plant in Temecula CA. This warranty is limited, at the option of Electro-Numerics, to repair, replacement, or an appropriate credit adjustment not to exceed the original equipment sales price. All warranty freight charges are F.O.B., our plant, Temecula, CA. Electro-Numerics assumes no liability in connection with the

sales of its products beyond that stated above and is not responsible for any incidental or consequential loss or damage which might result from a failure of any Electro-Numerics' product.

### SERVICE:

Products being returned for service should be sent, freight prepaid, to Electro-Numerics, Inc., 42213 Sarah Way, Temecula, CA, U.S.A. to the attention of the Repair Department with a full description of the problem or reason for return. All items sent in for service are subject to a minimum evaluation charge of \$65.00 in the event that the product is found to be out-of-warranty or, if under warranty, not in need of additional service. Out-of-Warranty service and repair charges will be quoted on a case-by-case basis. All repaired products will be shipped to you F.O.B., Temecula, CA.

## CONDITIONS OF SALE

### Freight:

F.O.B Temecula, California. Insurance and handling charges are added to all shipments. Handling charges are computed at 1% of the shipment product cost with \$1 minimum & \$7 maximum.

### Prices:

Prices published in catalogs, price lists or on the Internet are not offers to sell and are subject to change without notice. General price information should be specifically confirmed. Product listings, specifications and manufacturing details are subject to change without notice.



42213 Sarah Way, Temecula CA 92590

**1-800-854-8530** Tel: 951-699-2437 Fax: 951-695-7246

Web Site: <http://www.electronumerics.com>



**CITY OF ST. LOUIS  
DEPARTMENT OF FINANCE  
OFFICE OF THE SUPPLY COMMISSIONER**

**FREDDIE L. DUNLAP**  
SUPPLY COMMISSIONER

**FRANCIS G. SLAY**  
MAYOR

1200 MARKET STREET  
ROOM 324  
ST LOUIS, MO 63103-2819  
(T): (314) 622-4580  
(F): (314) 622-4141

**ATTENTION BIDDERS**

*Please carefully review all information requested in this bid package.*

*Failure to submit requested samples, literature or any other requested information may result in disqualification of your bid or any portion of your bid.*

*Also the reasons indicated below may disqualify your bid. If you have any questions, call the buyer indicated in this bid package.*

**This form must be returned with your bid.**

- Two or more bids submitted for one item, unless instructed to do so. (item rejected)
- Signature missing on bid or any required form.
- Buy American Form not completed or returned. (may be rejected)
- M/WBE Form not completed or returned. (may be rejected)
- Altered or erased unit prices must be initialed.
- Faxed bid, unless specifically requested (will be rejected).
- FOR CONTRACTS ONLY: Please provide your DUNS # \_\_\_\_\_
- FOR CONTRACTS ONLY: Failure to submit required Bond by the date indicated.

***I certify that I have read and understand the information above.***

\_\_\_\_\_  
Manual Signature

\_\_\_\_\_  
Date

# ST. LOUIS DOMESTIC PRODUCTS PROCUREMENT ACT

The City of St. Louis has enacted an ordinance relating to the purchase of domestic products by City government, with penalty provisions. The ordinance amends Section 5.58.010 Revised Code of the City of St. Louis, 1986, as amended by adding thereto new subsections dealing with the requirement that the Supply Commissioner or his designee give preference to goods or commodities manufactured in the United States of America, stating exceptions to said policy. Sections one through six are reprinted below.

**Section One.** Section 5.58.010 Revised Code of the City of St. Louis is hereby amended by adding the following language: Each solicitation to bid and the method of describing the items to be bid upon of any goods or commodities sought to be purchased by the Office of Supply Commissioner, and any contract entered into by and on behalf of the City of St. Louis and executed by the Mayor and/or the Comptroller of the City of St. Louis wherein the construction, alteration, repair or maintenance of any public works is the subject of the contract so executed, shall contain a provision that the goods or commodities furnished or used in the furtherance of said project by any contractor or subcontractor, manufacturer or supplier as the case may be, shall be manufactured, assembled or produced in the United States, and said requirement as defined above shall be stated in said bid.

**Section Two.** The provision of Section One of this Ordinance shall not apply in the following instances:

- (i) Where the item purchased as the contract entered into for repairs or renovation is less than One Thousand (\$1,000.00) Dollars.
- (ii) Where no line of a particular good or product is manufactured, assembled or produced in the United States.
- (iii) Where the acquisition of United States manufactured or produced goods would increase the cost by more than (10%) percent.

**Section Three.** The certificate required by this section shall specify the nature of the contract, the product being purchased or leased, the names and addresses of the United States manufacturers and producers contracted by the Commissioner or the project architect or engineer, and an indication that such manufacturers or producers could not supply sufficient quantities or that the price of the products would increase the cost of the contract by more than ten percent.

**Section Four.** No public agency may authorize, provide for, or make any payment to any vendor or contractor upon any contract in violation of section 2 of this act. Prior to the awarding of the bid and before any public agency authorizes, provides, or makes payment to any vendor or contractor upon any contract to which section 2 or 6 of this act applies, the vendor or contractor shall provide proof of compliance with section 2, and, if applicable, section 6 of this act. Any vendor or contractor who knowingly misrepresents any material fact to the public agency concerning the origin of any manufactured goods or commodities shall be guilty of a Class A misdemeanor.

**Section Five.** Sections 1 to 6 of this act shall apply only to contracts and subcontracts entered into after the effective date of this act, and shall not limit the use or supply of manufactured goods or commodities purchased or leased prior to the effective date of this act.

**Section Six.** Nothing in sections 1 or 6 of this act is intended to contravene any existing treaty, law, agreement, or regulation of the United States. All contracts under section 1 or 6 of this act shall be entered into in accordance with existing treaty, law, agreement, or regulation of the United States including all treaties entered into between foreign countries and the United States regarding export-import restrictions and international trade and shall not be in violation of sections 1 to 6 of this act to the extent of such accordance.

## Interpretations and Guidelines

**Section One:** "Shall be manufactured" is interpreted to mean to make or process a raw material into a finished product or to turn-out in a mechanical manner. "Assembled" is interpreted to mean to fit or to join together the parts, gather, or to congregate in a manufacturing environment. "Produced" is interpreted to mean to create by manual or physical effort, to make or yield to customary product or products.

**Section Two (i)** This is interpreted to mean less than one thousand dollars in aggregate (total purchases).

**(iii)** When applying this subsection, multiply the cost of the foreign product by ten percent and compare the cost to the American product. If the American product cost is less than the sum of the cost of the foreign product plus ten percent, the award will be made to the vendor bidding the American product. The price paid by the City of St. Louis will be the actual price bid by the winning bidder.

**Section Three:** "Could not supply sufficient quantities" is interpreted to mean in order to meet the using agency's delivery schedule and in quantity specified.

**Section Four:** The vendor's authorized representative must complete a self-certification form, as required by the existing procedures previously indicated. These certification forms will be used to determine whether the manufacturer or producers could, or could not supply sufficient quantities, or the cost of the products would increase the contract by more than ten percent.

Prior to the City awarding the bid, the vendor shall provide certification that the product being bid is manufactured, assembled or produced in the United States or there is an existing treaty, law or regulation whereby the product bid shall be treated the same as product manufactured, assembled or produced in the United States. The procuring agency shall accept the self certification in order to apply the percentage differential that is applicable under this law. Failure to provide certification shall cause the city to presume that such product is not American made and preference shall not be considered for that product.

# CERTIFICATION FORM

## ST. LOUIS DOMESTIC PRODUCTS PROCUREMENT ACT

### (BUY AMERICAN)

Bidders are advised of legislation enacted by the City of St. Louis which requires all manufactured goods or commodities used or supplied in the performance of this contract or any subcontract to be manufactured, assembled or produced in the United States, unless obtaining American made products would increase the cost of this contract by more than ten percent.

Section Four requires the vendor or contractor to certify his compliance with this legislation and if applicable, Section Six, if preference is claimed.

This legislation does not apply if the total bid is less than one thousand dollars (\$1,000.00).

Bids received will be evaluated on the basis of this legislation. Certificates of compliance must be completed and returned to be considered for preference. Failure to provide certification shall cause the City to presume that such product is not American made.

☐

#### CERTIFICATION

If **all** the specified goods or products are manufactured, assembled or produced in the United States, check box at left and complete certification at the bottom of this form.

☐

#### SECTION SIX CERTIFICATION

If any or all of the specified goods or products are manufactured, assembled or produced in a country other than the "United States", and exemption is requested because such product is Fair Trade Product: (a) list the country, other than the United States, where each good or product you propose to furnish is manufactured, assembled or produced; (b) check box at left of this paragraph and list corresponding commodities and (c) complete Section Six Documentation portion below.

**Item Number(s)**

**Location Where Item Manufactured, Assembled or Produced**


☐

#### SECTION SIX DOCUMENTATION

The specified goods or products are treated as manufactured, assembled or produced in the United States under an existing treaty, law, agreement or regulation of the United States regarding export-import restrictions and international trade. List item Number(s) and Treaties covering item below.


#### DEFINITIONS

- MANUFACTURED** - to make or process a raw material into a finished product; create, or to produce or to turn-out in a mechanical manner.
- ASSEMBLED** - to fit or join together the parts in a manufacturing environment.
- PRODUCED** - create by manual or physical effort, to make or yield the customary product or products.

#### MUST BE COMPLETED AND SIGNED

I hereby certify that the above information is true and correct and further certify that this statement complies with all provisions of Section 5.58.010 Revised Code of the City of St. Louis, 1985, as amended.

**FIRM NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**CITY:** \_\_\_\_\_ **STATE:** \_\_\_\_\_ **ZIP:** \_\_\_\_\_

**BY:** \_\_\_\_\_

(SIGNATURE and TITLE)



**CITY OF ST. LOUIS/SUPPLY DIVISION  
MINORITY/WOMEN BUSINESS ENTERPRISES FORM  
(M/WBE FORM)**

**A. Mayor's Executive Order #28, Section Six - Supply Contracts**

1. The goal of the City of St. Louis is that 25% of the value of all contracts let and purchases made by the Supply Commissioner shall be let or made with Minority Business Enterprises (MBEs) and that 5% of the value of all contracts let and purchases made by the Supply Commissioner shall be let or made with Women's Business Enterprises (WBEs).
2. All contracts let by the Supply Division for the purchase or lease of materials, equipment, supplies, commodities or services, the estimated cost of which exceeds \$500, shall be subject to this goal.
3. The methods by which the Supply Commissioner shall pursue this goal shall include but not be limited to the following:
  - a. The Supply Commissioner shall solicit bids from minority business enterprises and women's business enterprises certified to supply the required materials, equipment, supplies or services;
  - b. St. Louis Airport Authority (SLAA) shall provide the Supply Commissioner with a list of minority business enterprises and women's business enterprises qualified to provide each of those commodities that the Supply Commissioner indicates are required by the City;
  - c. The Supply Commissioner shall notify SLAA prior to solicitation of bids whenever no such qualified businesses are available;
  - d. SLAA shall attempt to identify such qualified businesses, and if successful, shall notify the Supply Commissioner of their availability; and
  - e. The Supply Commissioner shall provide such minority business enterprises and women's business enterprises every practical opportunity to submit bids.
4. Joint ventures or mentor-protégé relationships between prime contractors and subcontractors with local MBE and WBE firms are encouraged.
5. Participation of MBE and WBE firms located outside the St. Louis Metropolitan Statistical Area (SMSA) shall not count toward the goals established in this order.

**B. SUPPLY DIVISION POLICY**

It is the policy of the Supply Division that all bids/contracts awarded adhere to the Mayor's Executive Order #28. All vendors are encouraged to comply with this policy and all other provisions of Executive Order #28. A copy of Executive Order #28 is available upon request. Each Vendor/Contractor (bidder) must complete, sign and return this M/WBE Form. Failure to complete, sign and return the M/WBE Form will result in the bid being declared non responsive and your bid may be eliminated.

**C. OBLIGATION**

The bidder agrees to make a good faith effort to ensure that M/WBE businesses have an opportunity to participate in the performance of contracts or subcontracts financed in whole or in part with City funds. The bidder will take all necessary and reasonable steps to ensure that said businesses have an opportunity to compete for and perform under this bid/contract. The bidder shall not discriminate on the basis of race, color, national origin or sex in the award and performance of bids/contracts. The Directory of Disadvantaged, Minority and Women Owned Business Enterprises certified by the City of St. Louis, can be viewed at [www.mwdbe.org](http://www.mwdbe.org).

**CITY OF ST. LOUIS/SUPPLY DIVISION  
MINORITY/WOMEN BUSINESS ENTERPRISES FORM  
(M/WBE FORM)**

**D. BID/CONTRACT IDENTIFICATION**

Bid #: \_\_\_\_\_ or Contract Name: \_\_\_\_\_

Opening Date: \_\_\_\_\_ Your Bid Total: \$ \_\_\_\_\_

If your bid is \$500 or higher, please complete Section 'E'. We are NOT requesting information on how your company currently supports M/WBE suppliers. We want to know if there are opportunities you might consider to work with M/WBE suppliers for THIS SPECIFIC bid/contract.

**E. ASSURANCE                      MBE/WBE Goal: 25% MBE and 5% WBE (Minimum Participation)**

I, acting in my capacity as an officer of the undersigned bidder(s) if a joint venture, hereby assure the City of St. Louis that on this bid/contract my company will: **(CHECK ONLY ONE)**

☐ **Meet or exceed the M/WBE goal with: \_\_\_\_\_ % MBE and \_\_\_\_\_ % WBE Participation**

Proposed MBE Vendor Name: \_\_\_\_\_ Amount \$ \_\_\_\_\_

Item or materials to be supplied by MBE Vendor: \_\_\_\_\_

Proposed WBE Vendor Name: \_\_\_\_\_ Amount\$ \_\_\_\_\_

Item or materials to be supplied by WBE Vendor: \_\_\_\_\_

☐ **Fail to meet the M/WBE goal, but made a good faith effort to meet the goals as follows:**

\_\_\_\_\_ % MBE and \_\_\_\_\_ % WBE Participation (Enter Proposed Vendor information above.)

☐ **Not meet the M/WBE goal for the following reasons(s): (Check All That Apply)**

<input type="checkbox"/>	Our Company is an MBE certified by the State of: _____
<input type="checkbox"/>	Our Company is a WBE certified by the State of: _____
<input type="checkbox"/>	We have contacted suppliers listed in the SLAA Directory but have received no reply
<input type="checkbox"/>	There are no subcontracting opportunities for this bid/contract
<input type="checkbox"/>	We are a Dealer and the order will be drop-shipped from the manufacturer to the user
<input type="checkbox"/>	We are the manufacturer and the order will be drop-shipped from the factory to the user
<input type="checkbox"/>	A letter of explanation is attached
<input type="checkbox"/>	Other reason: _____ _____

FIRM NAME: \_\_\_\_\_

FEDERAL ID NUMBER: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

FAX NUMBER: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

E-MAIL: \_\_\_\_\_

**CITY OF ST LOUIS, MISSOURI**  
**INSTRUCTION TO BIDDERS (for request for quotations - RFQs)**

VENDORS SHOULD CAREFULLY READ THE FOLLOWING INSTRUCTIONS AND TERMS AND CONDITIONS, BEFORE SUBMITTING QUOTATION. **CAUTION: THIS IS NOT AN ORDER**

- Quotations will only be accepted on this form which must be returned in a **sealed envelope**. *The upper left corner of the envelope must include the following information: Vendor Name, Quotation Number and the Due By Date.* This information is also required on any mail delivered next day or overnight.
- Quotations should be typewritten or in ink. Altered or erased unit price(s) must be initialed. One copy of Quotation Sheet must be submitted, please retain a copy for your files.
- The Supply Commissioner reserves the right to reject any or all bids.
- The Supply Commissioner reserves the right to make awards on an item basis or on a total basis.
- Bidders must quote Unit Price(s) and Extension on each item. When an error appears on an extension, the Unit Price(s) will govern.
- When Quotation Sheet requests item(s) by brand name and your quote is for an alternate brand – show brand name(s) with model number(s) and attach full specifications.
- When Quotation Sheet has only a general description(s) of item(s) required – show brand name with model number(s) and attach full specifications.
- Suppliers shall not offer more than one bid on each item. Two or more quotations on the same item may cause a rejection of the bid. Suppliers must determine which one of their many styles or types fully meet the specification.
- Freight or delivery charges must be included in quote, or shown separately on quote, so bid can be evaluated.
- **Bids must arrive no later than NOON** on the date stated or will be rejected. Faxed or E-mailed bids are not accepted unless specifically requested.
- Bids will be publicly opened on the date specified beginning at NOON.
- Prices quoted will be considered firm.
- Bids having an acceptance limit of less than 30 days after opening date may be rejected.
- Time of proposed delivery must be stated in definite terms.
- Failure of Bidder to understand the item(s) requested or any part of the specifications will not be a valid reason for bidding on the wrong item(s). Any questions regarding description of item(s) requested should be cleared with the Buyer listed in the bid document.
- **Samples** when requested must be delivered before actual time of bid opening with each sample plainly tagged showing the name of Bidder, Quotation Number, Brand Name and lot number or quality. Submission of samples does not relieve bidder from meeting the specifications as outlined in the Bid Documents unless the bidder specifically states they are bidding on an alternate.
- All samples are to be submitted to the address listed below unless otherwise stated in Bid Documents.
- Deliveries must be accompanied by a packing slip or invoice, listing the Department, Quotation Number, and the exact quantities of each item included in the shipment.
- ONLY U.S.P., N.F., OR N.N.D. DRUGS ARE ACCEPTABLE. ALL DRUGS MUST COME IN MANUFACTURER'S ORIGINAL PACKAGES, PROPERLY SEALED.
- In the event the successful bidder fails to make delivery of any item or items that meet the conditions and requirements as outlined in this proposal within 7 days of time stated by bidder on face of this quotation sheet, the City reserves the right to purchase said item or items on the "OPEN MARKET" and charge any costs above the BID PRICE to the bidder.
- The laws of the State of Missouri provide that the City of St. Louis pay no State Sales or Use Tax or Federal Excise Taxes and these taxes should be excluded from your bid price. Federal Excise Tax Exemption Certificates will be furnished to successful bidder.
- Suppliers shall save harmless the City of St. Louis from the payment of any and all claims or demands arising out of any infringement, alleged infringement, or use of any patent or patented device, article, system, arrangement, material or process used by him in the execution of this contract.
- Supply Division hours are Monday through Friday – 8:00 A.M. to 5:00 P.M. Main Number: 314-622-4580.

**All bids must be submitted in a SEALED ENVELOPE and mailed to:**

SUPPLY COMMISSIONER  
1200 MARKET ST RM 324  
ST LOUIS MO 63103-2842